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ABSTRACT

Successful curriculum implementation depends partially on agreement between developers and teachers regarding the relative importance of the objectives of the program. This paper analyzes the ratings of the relative importance of various stated objectives of an elementary science unit by developers, teachers, and outside evaluators. The rating system used is based on the number of activities provided in the materials, related to each objective. Results indicate significant discrepancies between the ratings of the developers and the teachers compared to the evaluators. The reason for this includes too little emphasis on the clear establishment of priorities in the development of the curriculum itself. It is suggested that teachers need to realize the importance of establishing priorities in teaching objectives and to develop a more discerning approach in their own perceptions of priorities as ways to minimize the phenomenon. (Author/MA)

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An Examination of Priority Discrepancies between Developers and Teachers using a Science Unit

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Abstract

Successful implementation of a curriculum depends in great part on agreement between the developers and the teachers as to the priority of the objectives of the unit. The present report analyzes this factor in an elementary science unit on colors which was in the final stages of development, with considerable contact between the developers and the teachers. Although it was found that the teachers were in relative agreement with the developers as to the priority level of over 3/4 of the objectives, a much lower level congruency would be expected in normal classroom use. Also, both groups tended to weight all objectives highly, especially as compared to the ratings of outside evaluators. We conclude from this that too little emphasis was put upon the clear establishment of priorities in the development of the curriculum itself, and that the teachers need to realize the importance of establishing priorities in teaching objectives and to develop a more discerning approach in their own perceptions of priorities.

During the last 20 years, the need for new curricula has been met by curriculum developers in a broad range of school subjects, and although new curricula are still being developed and/or revised, a large emphasis is currently directed toward critical examination of the implementation process of new curricula (Fullan and Pomfret, 1977). Given their enormous investment in the development of new curricula, developers are concerned with what actually happens to their curricula in the classroom and where the reasons for success or failure lie.

In the U.S., following a wave of large-scale school reforms and federally funded new curricula projects, Goodlad and co-workers (1970), in a study of the effective reality of the new curricula in the schools, found a rather gloomy picture as to the success manifested in the classrooms and it was suggested that some kind of slippage was occurring between the development and implementation stages. It might appear that such a slippage might be endemic only to a decentralized education system like in the U.S., given the relative autonomy enjoyed by local districts and teachers in final decisions affecting the actual implementation of curricula. However, differences in the conceptualization by different users of the same curriculum have been reported for Canada, which has a semi-centralized system (Herron, 1971; Connelly, 1972). Similarly, in a smaller-scale and highly centralized education system like Israel's, one would expect to find relatively close agreement between the stages of curriculum development, but here too, reports indicate significant discrepancies between developers, teacher-trainers, and teachers (Tamir and Jungwirth, 1972) and between developers and teachers (Sabar and Kaplan, 1978). These discrepancies indicating that the intent of a curriculum, as conceived by the developers, is not being successfully transmitted to the implementers at the implementation stage.

As a framework for studying curriculum implementation, a model has been devised for collecting data and analyzing the various aspects of implementation (Klein et al., 1976). This model proposes that any curricular factor can be identified and characterized as a combination of one of nine educational criteria (description, decision making, rationale, priorities, attitudes, appropriateness, comprehensiveness, individualization, and barriers and facilitators) and one of nine educational variables (goals and objectives, materials, content, learning activities, strategies, evaluation, grouping, time, and space). These educational criteria and variables form grids which are functional on five levels or in five domains: the utopian "ideal" curriculum, the "formal" curriculum as designed by developers, the "instructional" curriculum as perceived by the teacher, the "operational" curriculum as carried out in the classroom, and lastly, the "experienced" curriculum as processed by the students.

Purpose of the Study

In the present study, our purpose is to focus on one aspect of this curricular process and study its transmission from one domain to another. Specially, we focus on the interaction of priorities (an educational criterion) and goals and objectives (an educational variable) as they are transmitted from the formal curriculum level (the developers) to the instructional level (the teachers). We chose to focus on this particular aspect of the curricular process on two accounts: First, with respect to the interrelation of priorities and objectives, this appears to us to a critical underlying foundation for the success of curricular efficacy. In Herron's (1971) study of Canadian curriculum implementation, it is suggested that the lack of identification in emphasis and importance between developers and teachers is one of the important reasons that new curricula fail to achieve the expected change as set forth

in the objectives. Second, the transmission from developers to teachers is critical to the developers in that it is the part of the transmission process over which they have the most control to effect the communication of objectives and priorities, their being relatively powerless to control the actual performance of the teacher in the classroom. According to Evans, in a report on eight studies of new science teaching curricula (1975), this classroom performance is highly influenced by the teacher's own perception of and attitude towards the rationale and objectives of a particular curriculum. This transmission stage is also the point at which concerned teachers can be most influenced as to the intended objectives and priorities of new programs.

Specifically, the present study focused on a new science teaching unit on "colors" being developed at Tel-Aviv University by the NILI Project for Individualized Instruction for first - and second-grade elementary school students. The instructional strategy of the NILI Project is a partially individualized one with acknowledgement to Piagetian concepts of development. Operationally, the project accepts Tyler's (1949) concept of curriculum, in which units are developed around activities as a means for attaining objectives.

Method and Procedure

For objectivity and reliability, (following Stufflebeam, 1968), two outside curriculum evaluators computed a list of the objectives of the new teaching unit which included: 27 objectives defined in the teachers' guide, plus 11 more gleaned from an analysis of the specific activities incorporated in the unit. Because of a later lack of agreement by the evaluators as to the importance of two of the objectives, the list was finalized at 36 (the two objectives in question having been deleted).

For purposes of a standard of reference, the evaluators then rated the objectives as to their importance (i.e., priority). This was done on a 4-point scale from "of no importance," to "of little importance," "of moderate importance," and finally, "of great importance." The evaluators based their rating decisions on the number of activities related to each objective. This rating procedure was adopted to give a fairly objective evaluation of priority based on the stated emphasis placed by the development project itself on the correlation between activities and goals and the fact that content validity of the unit had already been checked, at the developing stage through an early evaluation analysis by the project's evaluators to discover if activities actually covered the stated objectives of the unit. Furthermore, it is our feeling that this concrete interpretation of Bobbit's position that through activity analysis one can discover the objectives of the curriculum (1924) is especially valid at the elementary school level where activities are generally short and multivaried.

The study was designed as a one-shot type study as described by Campbell & Stanley (1963). The list of 36 objectives of the unit was presented to the two developers of the unit and to 15 teachers who were receiving in-service training in the use of the new curriculum.

The developers were requested to state the degree of importance of each objective as they perceived it during the development of the unit; the teachers were asked to state the degree of importance for each item as perceived by them on the basis of their acquaintance with the unit presented in their in-service training. Both groups used the same 4-point scale as the evaluators, but with no reference to number of activities - these later ratings being more impressionistic and hopefully therefore more a measure of the realistic priorities transmitted.

Our choice of teachers who were in such close contact with the developers was predicted upon an assumption that this contact should provide for maximal transmission of priorities and objectives, i.e., that if the communication process from developers to teachers is to be successful in any situation, it should be in this one.

Results and Discussion

[redacted]. An examination of the discrepancies between the ratings of the three groups yields the data shown in Table 1. Of concern to us at this point is the amount of agreement shown between the developers and teachers: They are in full agreement on 1/3 of the objectives, without having any major disagreement. Thus we note that the teachers were in relative agreement with the developers on over 3/4 of the objectives. This would appear to concur with Jungwirth's (1975) findings in a study of Israeli teachers' perceptions at a similar stage of curriculum development and attributed their high congruency with the developers to a Hawthorne effect. Still, one might have expected a tighter fit, given that when teachers leave this stage of close personal contact with the developers and the maximal influence which is afforded during in-service training, and return to their isolated classrooms, the slippage will increase.

However, if we look at the evaluators' original ratings in comparison to the ratings of the teachers and the developers, a much greater discrepancy is evidenced. There were moderate plus major disagreements with 63.9% of the teachers' ratings and 47.2% of the developers' ratings.

These much higher discrepancies can be account for in two ways: the first and most obvious one being to question the rating system used by the evaluators - a criticism which we cannot refute other than by reiterating our belief in its

validity, especially in this instance, given the project's espousal of it in principle. We must therefore question the clarity of the developers in the manifestation of their perceived priorities; that is, the translation of envisaged priorities into a real and detailed learning program that has to be effected by more than impressionistic feelings of the intended priorities.

Moreover, whatever the possible deficiencies of the rating system used in this study, another consideration can, we feel, provide additional information toward a possible explanation. For this, let us look at the comparative levels of the three groups' ratings.

First we should note that the evaluators had the lowest mean ratings (2.14) followed by the developers (3.14 $\pm$ 0.57) and finally the teachers, with a very high average rating (3.89 $\pm$ 0.11). This teachers' rating with its low variance reflects both a high internal agreement about 80% -32 out of 36 objectives within their group and the fact that the majority of the teachers rated nearly 90% of the objectives as "of great importance" and the rest as "of (at least) moderate importance" (see table 2). At the same time, the developers rated about 39% of the objectives as very important and an additional 39% were rated as relatively important. The evaluators were in fact the only group who rated any objectives as having no importance (38.9%) and the others were distributed over the other three degrees.

This data would indicate that the teachers almost uniformly viewed most objectives as very important, suggesting that they were unable to really rank the objectives with any substantial priority. This lack of discrimination becomes critical in the classroom, where faced with pressures of limited time, the teacher must make selective decisions on which activities to stress, delete, etc. Otherwise, as is often the case, at the end of the time alloted to the unit, the

teacher realizes that important objectives have to be skipped just because they appear later in the sequence. However, it is not clear precisely to what extent this lack of priority ranking on the part of the teachers results from their own inability to discern priorities or from a faulty communication of priorities on the part of the developers and the curriculum itself. Although both undoubtedly play a part, the relatively high mean ratings given by the developers would also suggest a lack of clarity as the developers' sense of priority itself. Although it might be argued that this can be accounted for by the fact that for an objective to be included in a curriculum at all, it must be important, because of the practical problems faced by the teachers in implementing a curriculum, not only must the objectives be clearly identified, but the relative priority of each objective to one another has to be made apparent by the developers - a condition not fostered by the developers if they weight the majority of objectives all with high priority.

Although this study demonstrated that some slippage occurred in the transmission of objectives and priorities from developers to teachers, the relative small average slippage 0,88 (Table 3) should be taken with caution given the select group of (in-service) teachers and the moot issue of how to best both implement and rate the system of priorities. However, other than the need for further clarification on this last point, several important practical implications emerge from the study:

1) Developers must realize that in addition to drawing up the usual list of objectives, it is equally important to develop a priority ranking among these objectives.

2) Both developers and evaluators must be concerned in their analyses of unit objectives and priorities, that both of these features are effectively handled in the curriculum and that both are made apparent to the teachers. And as Eash (1972) has suggested, it is critical that such an ongoing analysis should concern developers and evaluators from the earliest stages of curriculum development.

3) Teachers need to be more critical in their perceptions of priorities so that they do in fact extract a workable system of differential priorities and can manipulate their classroom time more effectively.

4) Given the abundance of elementary science curricula now available, and the increasing difficulty teachers face in selecting effectively from this wealth of instructional material teachers should be concerned with finding curricula where both the objectives and their priorities are clearly indicated and fit the teachers' perceptions as to the needs of their students.

Table 1

Comparative Discrepancies in Ratings of 36 Objectives by the 3 groups

Groups Compared	Full Agreement	Small Discrepancy (=1)	Moderate Discrepancy (=2)	Main Discrepancy (=3)
Teachers/Developers	12 (33.3%)	16 (44.4%)	8 (22.2%)	0
Teachers/Evaluators	7 (19.4)	6 (16.6)	12 (33.5)	11(30.5)
Developers/Evaluators	5 (13.9)	14 (38.9)	15 (12.7)	2 (4.5)

Table 2

Distribution of Ratings for the 3 Groups

Ratings	Teachers	Developers	Evaluators
4 - Great importance	32 (89.9%)	14 (38.9%)	7 (19.9%)
3 - Moderate importance	4 (11.1)	14 (38.9)	4 (11.1)
2 - Little importance	0	8 (22.2)	11 (30.6)
1 - No importance	0	0	14 (38.9)

Table 3

Average of Discrepancies

Teachers-Evaluators	Teachers-Developers	Evaluators-Developers
1.75	0.88	1.38

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